

=> FIL REG

FILE 'REGISTRY' ENTERED AT 16:23:42 ON 15 MAY 2009  
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=> D HIS

FILE 'HCA' ENTERED AT 15:50:18 ON 15 MAY 2009

L1 23566 S KWON ?/AU  
L2 130722 S PARK ?/AU  
L3 9412 S CHIN ?/AU  
L4 292476 S KIM ?/AU  
L5 81458 S SONG ?/AU  
L6 10053 S SUH ?/AU  
L7 327097 S LEE ?/AU  
L8 1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6 AND L7

FILE 'REGISTRY' ENTERED AT 15:52:22 ON 15 MAY 2009

E C60F42/MF  
L9 73 S E3  
L10 3 S L9 AND 10/NRS  
SEL 2 L10 RN  
L11 1 S E1  
SEL L10 1,3 RN  
L12 2 S E2-3

FILE 'ZCA' ENTERED AT 16:20:28 ON 15 MAY 2009

L13 6 S L11  
L14 7 S L12  
L15 4 S 1808-2003/PY,PRY,AY AND L13  
L16 5 S 1808-2003/PY,PRY,AY AND L14

=> FIL ZCA

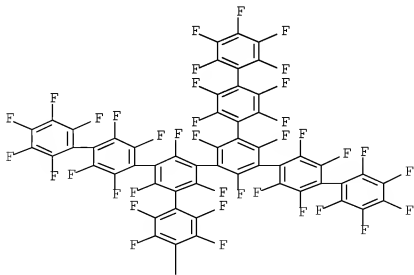
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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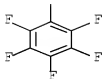
----- (STRUCTURE 26) -----

=> D L15 1-4 BIB ABS HITSTR HITRN RE

L15 ANSWER 1 OF 4 ZCA COPYRIGHT 2009 ACS on STN  
AN 149:199807 ZCA Full-text  
TI 2,2',4,4',6,6'-Hexafluorobiphenyl  
AU Prakash, G. K. Surya; Hu, Jinbo  
CS USA  
SO e-EROS Encyclopedia of Reagents for Organic Synthesis (2001  
) , No pp. given Publisher: John Wiley & Sons, Ltd., Chichester, UK.  
CODEN: 69KUHI  
URL: <http://www3.interscience.wiley.com/cgi-bin/mrwhome/104554785/HOME>  
DT Conference; General Review; (online computer file)  
LA English  
OS CASREACT 149:199807  
AB A review of the article 2,2',4,4',6,6'-Hexafluorobiphenyl.  
IT 262422-68-4P  
(2,2',4,4',6,6'-Hexafluorobiphenyl)  
RN 262422-68-4 ZCA  
CN 1,1':4',1'':3'',1''':3''',1''':4''',1''':5''',2,2',2'',2''',2''':2''',3,3',3''',3''':4,4',4''',4''':5,5',5''',5''':6,6',6''',6''':6''',6''':6''':tetracosafuoro-5'',5'''-bis(2,2',3,3',4',5,5',6,6'-nonafluoro[1,1'-biphenyl]-4-yl)- (CA INDEX NAME)

PAGE 1-A





IT 262422-68-4P  
(2,2',4,4',6,6'-Hexafluorobiphenyl)

L15 ANSWER 2 OF 4 ZCA COPYRIGHT 2009 ACS on STN

AN 137:192421 ZCA Full-text

TI Approaches to advanced organic light emitting diodes: Materials and devices

AU Ikai, Masamichi; Taga, Yasunori

CS TOYOTA Central Research and Development Laboratories, Inc., Aichi, 480-1192, Japan

SO Materials Research Society Symposium Proceedings (2002), 665(Electronic, Optical and Optoelectronic Polymers and Oligomers), 81-91

CODEN: MRSPDH; ISSN: 0272-9172

PB Materials Research Society

DT Journal

LA English

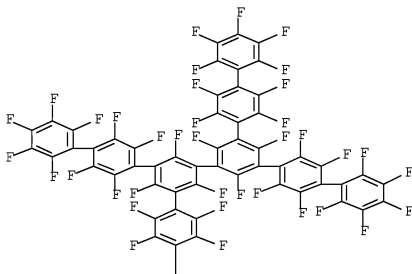
AB We present our recent findings on the development of org. light emitting diodes (OLEDs). One of the keys to highly efficient phosphorescent emission in org. light-emitting diodes is to confine triplet excitons generated within the emitting layer. To confine triplet excitons, we employ perfluorinated phenylene dendrimers (C60F42) as a both hole- and exciton-block layer, and a hole-transport material (4,4',4''-tris(N-carbazolyl) triphenylamine [TCTA]) as a host for the phosphorescent dopant, Ir(ppy)3, in the emitting layer. The max. external quantum efficiency reaches up to 19.2%, and is over 15% even at high injection current densities of 10 to 20 mA/cm2, where the brightness of the device reaches approx. 10,000 cd/m2.

IT 262422-68-4  
(hole- and exciton-blocking layer; advanced org.

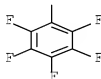
electrophosphorescent devices employing perfluorinated phenylene dendrimers as exciton-confinement layer and TCTA hole-transport material as host for phosphorescent dopant)

RN 262422-68-4 ZCA  
 CN 1,1':4',1'':3'',1'':3''',1'':4''',1'':5''-Sexiphenyl,  
 2,2',2'',2''',2''',2''',3,3',3''',3''',4,4'',4''',4''',5,5',  
 5''',5''',6,6',6'',6'',6'',6''-tetracosafuoro-5'',5''-  
 bis(2,2',3,3',4',5,5',6,6'-nonafluoro[1,1'-biphenyl]-4-yl)- (CA  
 INDEX NAME)

PAGE 1-A



PAGE 2-A



IT 262422-68-4  
 (hole- and exciton-blocking layer; advanced org.)

electrophosphorescent devices employing perfluorinated phenylene dendrimers as exciton-confinement layer and TCTA hole-transport material as host for phosphorescent dopant)

RE

- (1) Adachi, C; Appl Phys Lett 2000, V77, P904 ZCA
- (2) Baldo, M; Appl Phys Lett 1999, V75, P4 ZCA
- (3) Baldo, M; Nature 1998, V395, P151 ZCA
- (4) Baldo, M; Nature 2000, V403, P750 CAPLUS
- (5) Baldo, M; Phys Rev B 2000, V62, P10967 ZCA
- (6) Banks, R; Organofluorine Chemistry: Principle and Commercial Applications, Topics in Applied Chemistry 1994
- (7) Cleave, V; Adv Mater 2001, V13, P44 ZCA
- (8) Fukase, A; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P293
- (9) Hudlicky, M; Chemistry of Organic Fluorine Compounds II: Critical Review, ACS Monograph 187 1995
- (10) Kuwabara, Y; Adv Mater 1994, V6, P677 ZCA
- (11) Mori, T; Unpublished
- (12) O'Brien, D; Appl Phys Lett 1999, V74, P442 ZCA
- (13) Rothberg, L; J Mater Res 1996, V11, P3174 ZCA
- (14) Sakamoto, Y; J Am Chem Soc 2000, V122, P1832 ZCA
- (15) Shiga, T; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P179
- (16) Stolka, M; J Phys Chem 1984, V88, P4707 ZCA
- (17) Tokito, S; Unpublished
- (18) Tsutsui, T; Intrinsically Conducting Polymers: An Emerging Technology 1993, V246, P123 ZCA
- (19) Yang, M; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P227

L15 ANSWER 3 OF 4 ZCA COPYRIGHT 2009 ACS on STN

AN 135:263839 ZCA Full-text

TI Highly efficient phosphorescence from organic light-emitting devices with an exciton-block layer

AU Ikai, Masamichi; Tokito, Shizuo; Sakamoto, Youichi; Suzuki, Toshiyasu; Taga, Yasunori

CS Toyota Central Research and Development Laboratories, Incorporated, Nagakute, Aichi, 480-1192, Japan

SO Applied Physics Letters (2001), 79(2), 156-158  
CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics

DT Journal

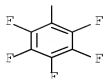
LA English

AB One of the keys to highly efficient phosphorescent emission in org. light-emitting devices is to confine triplet excitons generated within the emitting layer. Starburst perfluorinated phenylenes (C60F42) are used as a hole- and exciton-block layer, and the hole-

IT 262422-68-4  
(highly efficient phosphorescence from org. light-emitting devices with exciton-block layer)

CN 1,1':4',1'':3',1'':3'',1'':4''',1'':-Sexiphenyl,  
2,2',2'',2''',2''',2''',3,3',3''',3''',4,4'',4''',4''',5,5',  
5''',5''',6,6',6'',6''',6''',6''''-tetracosafuoro-5'',5'''-  
bis(2,2',3,3',4',5,5',6,6'-nonafluoro[1,1'-biphenyl]-4-yl)- (CA  
INDEX NAME)

The chemical structure shows a central core consisting of two fluorinated phenyl rings connected by a single bond. From this core, several other fluorinated phenyl rings branch out, creating a dendritic or star-like structure. Each phenyl ring is substituted with fluorine atoms at various positions, typically ortho and para to the connection points. The overall structure is highly symmetrical and represents a complex, high-molecular-weight polymer.



IT 262422-68-4

(highly efficient phosphorescence from org. light-emitting devices with exciton-block layer)

RE

- (1) Adachi, C; Appl Phys Lett 2000, V77, P904 ZCA
- (2) Baldo, M; Appl Phys Lett 1999, V75, P4 ZCA
- (3) Baldo, M; Nature (London) 1998, V395, P151 ZCA
- (4) Baldo, M; Nature (London) 2000, V403, P750 CAPLUS
- (5) Baldo, M; Phys Rev B 2000, V62, P10967 ZCA
- (6) Fukase, A; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P293
- (7) Kuwabara, Y; Adv Mater 1994, V6, P677 ZCA
- (8) Mori, T; unpublished data
- (9) O'Brien, D; Appl Phys Lett 1999, V74, P442 ZCA
- (10) Rothberg, L; J Mater Res 1996, V11, P3174 ZCA
- (11) Sakamoto, Y; J Am Chem Soc 2000, V122, P1832 ZCA
- (12) Shiga, T; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P179
- (13) Tsutsui, T; Intrinsically Conducting Polymers: An Emerging Technology 1993, V246, P123 ZCA
- (14) Yang, M; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P227

L15 ANSWER 4 OF 4 ZCA COPYRIGHT 2009 ACS on STN

AN 132:250936 ZCA Full-text

TI Synthesis, Characterization, and Electron-Transport Property of Perfluorinated Phenylene Dendrimers

AU Sakamoto, Youichi; Suzuki, Toshiyasu; Miura, Atsushi; Fujikawa, Hisayoshi; Tokito, Shizuo; Taga, Yasunori

CS Institute for Molecular Science, Myodaiji Okazaki, 444-8585, Japan

SO Journal of the American Chemical Society (2000), 122(8), 1832-1833

CODEN: JACSAT; ISSN: 0002-7863

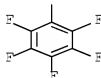
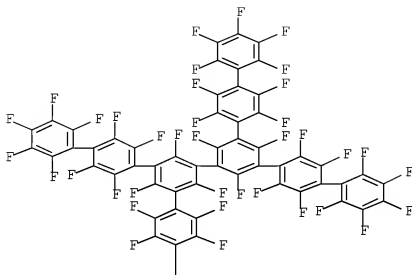
PB American Chemical Society

DT Journal

LA English







IT 262422-68-4P

(prepn. and electron-transport properties of perfluorinated dendritic oligophenyls)

RE

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- (2) Cairncross, A; Organic Syntheses 1988, VVI, P875
- (3) Curioni, A; J Am Chem Soc 1999, V121, P8216 ZCA
- (4) Deacon, G; J Organomet Chem 1989, V359, P267 ZCA
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- (10) Kobrina, L; J Fluorine Chem 1976, V8, P193 ZCA
- (11) Meijere, A; Carbon Rich Compounds I; Topics in Current Chemistry No 196 1998
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- (19) Strukelj, M; Science 1995, V267, P1969 ZCA
- (20) Tamao, K; J Am Chem Soc 1996, V118, P11974 ZCA
- (21) Tanaka, H; J Chem Soc, Chem Commun 1996, P2175 ZCA
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----- (CLOSELY RELATED COMPOUNDS) -----

=> D L16 1-5 BIB ABS HITSTR HITRN RE

L16 ANSWER 1 OF 5 ZCA COPYRIGHT 2009 ACS on STN

AN 138:138415 ZCA Full-text

TI Aromatic fluoropolymers having excellent heat resistance and a low relative permittivity and uses thereof

IN Yokotsuka, Shunsuke; Takeo, Fusaaki

PA Asahi Glass Co., Ltd., Japan

SO PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2003008483	A1	20030130	WO 2002-JP6589	

200206  
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LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
 NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
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 SN, TD, TG

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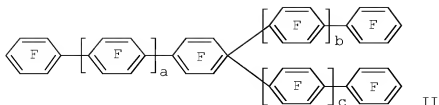
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 WO 2002-JP6589 W 20020628 <--  
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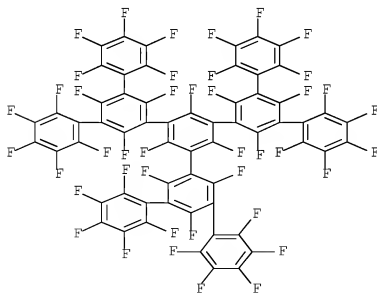
AB Polymers having ether linkages are prep'd. from branched fluorinated arom. compds. and compds. having a crosslinkable functional group and a phenolic hydroxyl group in the presence of an agent for eliminating HF. Thus, pentafluorobromobenzene (I) was mixed with EtMgBr, CuBr, and 1,3,5-triiodo-2,4,6-trifluorobenzene to give perfluoro(1,3,5-triphenylbenzene), which was treated with a reaction product of I with EtMgBr to give II (a, b, c. apprxx.1.2) and polymd. (2.19 g) with 1.37 g 4-(4-fluorophenylethynyl)phenol in AcNMe2-toluene-K2CO3 to prep. 2.76 g polymer having 3.0 ethynyl groups.

IT 262422-62-8P

(arom. fluoropolymers having heat resistance and low relative permittivity)

RN 262422-62-8 ZCA

CN 1,1':3',1'':3'',1''':3''',1''''-Quinquephenyl,  
2,2',2'',2''',2'''':3,3'''',4,4',4'',4'''',5,5''',6,6',6'',6'''-  
'6'''-nonadecafluoro-5',5'''-bis(pentafluorophenyl)-5''-  
(tridecafluoro[1,1':3',1''-terphenyl-5'-yl)- (9CI) (CA INDEX NAME)



IT 262422-62-8P

(arom. fluoropolymers having heat resistance and low relative permittivity)

RE

- (1) Air Products And Chemicals Inc; JP 09-202824 A 1997 ZCA
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- (13) Toyota Central Research And Development Laboratories Inc; JP 2001247498 A 2001 ZCA
- (14) Toyota Central Research And Development Laboratories Inc; JP 2002203683 A 2002 ZCA

L16 ANSWER 2 OF 5 ZCA COPYRIGHT 2009 ACS on STN

AN 136:348073 ZCA Full-text

TI Organic light-emitting devices

IN Ikai, Masamichi; Takeuchi, Hisato; Tokito, Shizuo; Taga, Yasunori

PA Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan

SO Eur. Pat. Appl., 46 pp.

CODEN: EPXXDW

DT Patent

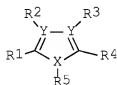
LA English

FAN.CNT 1

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	PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002203683	A	20020719	JP 2001-330212	

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PRAI JP 2000-330356 A 20001030 <--  
OS MARPAT 136:348073  
GI



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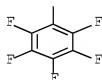
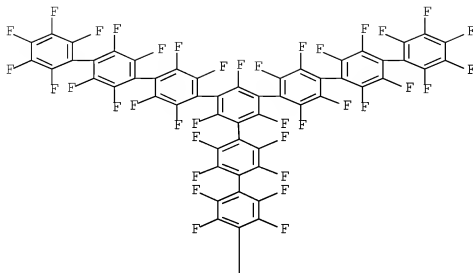
AB Org. light-emitting devices are described in which an org. material constituting  $\geq 1$  of the org. layers is described by the general formula I (X = O, N, S; Y = C, N; R1 and R2 and/or R3 and R4 and/or R2 and R3 may form a ring(s), or  $\geq 1$  of R1, R4 and R5 is a nitrogen or arom. ring and is a compd. connected to  $\geq 1$  more skeleton through the nitrogen or arom. ring, or  $\geq 1$  of R1, R4 and R5 is nitrogen or arom. ring and is a compd. connected to  $\geq 1$  more skeleton through the at least nitrogen or arom. ring and alicyclic compd.) and has a glass transition temp. of  $\geq 100^\circ$ .

IT 262422-70-8

(org. light-emitting devices using heterocyclic compds.)

RN 262422-70-8 ZCA

CN 1,1':4',1'':4'',1'':3'',1'':4'',1'':4'',1'':4'',1'':4''-  
Septiphenyl, 2,2',2'',2'',2'',2'',2'',2'',3,3',3'',3'',3'',  
,3'',4,4'',4'',5,5',5'',5'',5'',5'',5'',6,6',6'',6'',  
,6'',6'',6''-nonacosafuoro-5''-  
(2,2',2'',3,3',3'',4'',5,5',5'',6,6',6''-tridecafluoro[1,1':4',1''-  
terphenyl]-4-yl)- (CA INDEX NAME)



IT 262422-70-8

(org. light-emitting devices using heterocyclic compds.)

RE

(1) Anon; EP 0961324 A2 ZCA

L16 ANSWER 3 OF 5 ZCA COPYRIGHT 2009 ACS on STN

AN 135:263839 ZCA [Full-text](#)

TI Highly efficient phosphorescence from organic light-emitting devices with an exciton-block layer

AU Ikai, Masamichi; Tokito, Shizuo; Sakamoto, Youichi; Suzuki, Toshiyasu; Taga, Yasunori

CS Toyota Central Research and Development Laboratories, Incorporated, Nagakute, Aichi, 480-1192, Japan

PB American Institute of Physics  
DT Journal  
LA English

AB One of the keys to highly efficient phosphorescent emission in org. light-emitting devices is to confine triplet excitons generated within the emitting layer. Starburst perfluorinated phenylenes (C60F42) are used as a hole- and exciton-block layer, and the hole-transport substance, 4,4',4''-tri(N-carbazolyl) triphenylamine, as a host for the phosphorescent dopant dye in the emitting layer. The max. external quantum efficiency is 19.2%, and it is >15%, even at high current densities of 10-20 mA/cm<sup>2</sup>, providing several times the brightness of fluorescent tubes for lighting. The onset voltage of the electroluminescence is  $\geq 2.4$  V and the peak power efficiency is 70-72 lm/W, suitable for low-power display devices.

IT 262422-70-8  
(highly efficient phosphorescence from org. light-emitting devices with exciton-block layer)

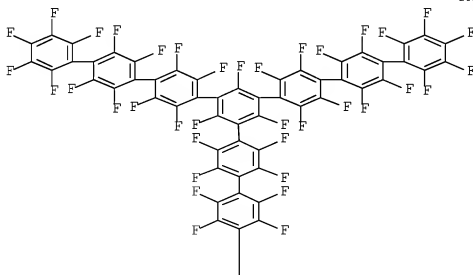
RN 262422-70-8 ZCA

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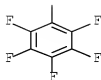
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',3''',4,4',4'',4''',5,5',5'',5''',5''',5''',5''',5''',6,6',6'',6''',
',6''',6''',6''',6'''-nonacosafuoro-5'''-
(2,2',2'',3,3',3'',4',4'',5,5',5'',6,6',6''-tridecafluoro[1,1':4',1''-
terphenyl]-4-vl)- (CA INDEX NAME)

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PAGE 1-A







IT 262422-70-8

(highly efficient phosphorescence from org. light-emitting devices with exciton-block layer)

RE

- (1) Adachi, C; Appl Phys Lett 2000, V77, P904 ZCA
- (2) Baldo, M; Appl Phys Lett 1999, V75, P4 ZCA
- (3) Baldo, M; Nature (London) 1998, V395, P151 ZCA
- (4) Baldo, M; Nature (London) 2000, V403, P750 CAPLUS
- (5) Baldo, M; Phys Rev B 2000, V62, P10967 ZCA
- (6) Fukase, A; Proceedings of the 10th International Workshop on Inorganic and Organic Electroluminescence 2000, P293
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L16 ANSWER 4 OF 5 ZCA COPYRIGHT 2009 ACS on STN

AN 135:233642 ZCA Full-text

TI Fluorinated polyphenyl or polyacene compound for organic electroluminescent device

IN Mori, Tomohiko; Fujikawa, Hisayoshi; Miura, Atsushi; Tokito, Seiji; Taga, Yasunori; Sakamoto, Yoichi; Suzuki, Toshiyasu

PA Toyota Central Research and Development Laboratories, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001247498	A	20010911	JP 2000-304121	20001003

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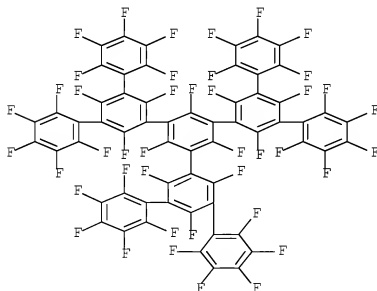
JP 3716732 B2 20051116  
PRAI JP 1999-371618 A 19991227 <--

AB The title fluorinated polyphenyl or polyacene compd. has  $\geq 3$  arom. rings and  $\geq 18$  carbons and contains only C and F. The fluorinated polyphenyl or polyacene compds. show the good chem.- and heat-resistance and the good charging characteristics.

IT 262422-62-8  
(fluorinated polyphenyl or polyacene compd. for org. electroluminescent device)

RN 262422-62-8 ZCA

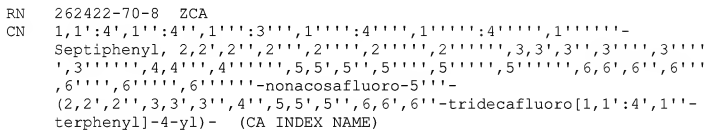
CN 1,1':3',1'':3'',1''':3''',1''''-Quinquephenyl,  
2,2',2'',2''',2''''',3,3''',4,4',4'',4''',4''''',5,5''',6,6',6'',6''',6''''-nonadecafluoro-5',5''-bis(pentafluorophenyl)-5''-  
(tridecafluoro[1,1':3',1''-terphenyl]-5'-yl)- (9CI) (CA INDEX NAME)

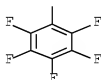
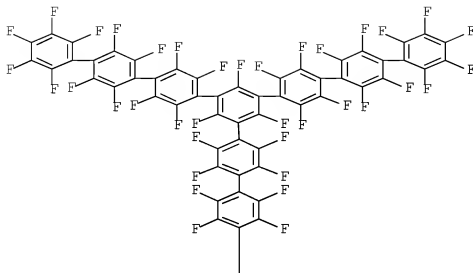


IT 262422-62-8

(fluorinated polyphenyl or polyacene compd. for org.  
electroluminescent device)

L16 ANSWER 5 OF 5 ZCA COPYRIGHT 2009 ACS on STN  
AN 132:250936 ZCA Full-text  
TI Synthesis, Characterization, and Electron-Transport Property of  
Perfluorinated Phenylene Dendrimers  
AU Sakamoto, Youichi; Suzuki, Toshiyasu; Miura, Atsushi; Fujikawa,  
Hisayoshi; Tokito, Shizuo; Taga, Yasunori  
CS Institute for Molecular Science, Myodaiji Okazaki, 444-8585, Japan  
SO Journal of the American Chemical Society (2000), 122(8),  
1832-1833  
CODEN: JACSAT; ISSN: 0002-7863  
PB American Chemical Society  
DT Journal  
LA English  
AB Dendritic branched perfluorinated oligophenyls were designed with a  
view to developing electron-transport materials for org. light-  
emitting diodes (OLEDs). The compds. have low-lying LUMOs and HOMOs  
(important for electron injection and hole blocking), relatively low  
sublimation temp. (making possible deposition of high mol. wt.  
compds. with high glass transition temps), and thermal and chem.  
stability due to strong C-F bonds. The cross-coupling step between 2  
different fluorinated Ph groups was achieved using organocopper  
chem.: first, trifluorophenylcopper was allowed to react with 1,3,5-  
tribromo-2,4,6-trifluorobenzene. The product was brominated and  
reacted either with C6F5Cu to give the perfluorinated dendrimer in  
which the Br groups were replaced by C6F5 groups, giving a dendrimer  
with mol. wt. 1518, or was again subjected to cross-coupling with  
trifluorophenylcopper, bromination and reaction with C6F5Cu to give  
the higher generation dendrimer with mol. wt. 3295. These compds.,  
as well as two non-dendrimer C60F42 perfluorinated phenylene isomers,  
were studied by 19F-NMR, EI-MS, and elemental anal., and the thermal  
properties were studied by DSC. Electron-transport properties were  
studied by making OLEDs on indium-tin-oxide glass substrates and by  
cyclic voltammetry. The non-dendrimer isomers gave more stable  
amorphous films and showed better electron-transport properties than  
the dendrimer compds. Exptl. details are available via the Internet.  
IT 262422-62-8P 262422-70-8P  
(prepn. and electron-transport properties of perfluorinated  
dendritic oligophenyls)  
RN 262422-62-8 ZCA  
CN 1,1':3',1'':3'',1''':3''',1''''-Quinquephenyl,  
2,2',2'',2''',2''''',3,3''',4,4',4'',4''',4''''',5,5''',6,6',6'',6'''  
,6''''-nonadecafluoro-5',5''-bis(pentafluorophenyl)-5'''-  
(tridecafluoro[1,1':3',1'':3'',1''':3''',1''''-terphenyl]-5''-yl)- (9CI) (CA INDEX NAME)





IT 262422-62-8P 262422-70-8P

(prepn. and electron-transport properties of perfluorinated dendritic oligophenyls)

RE

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